

REMARKS

The final Office Action dated March 21, 2007, has been reviewed carefully and the application has been amended in a sincere effort to place it in condition for allowance. A Request for Continued Examination is being filed herewith.

Claims 1-4 and 6-14 are pending in the application. Claim 5 has been cancelled herein, without prejudice, in response to the Restriction Requirement, but Applicant reserves the right to represent those claims in a continuation or divisional application.

Claim Rejections – 35 U.S.C. §103

Claims 1-4, 6-8 and 10-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over United States Published Application No. 2004/0211668 to Montminy, et al. ("Montminy"), in view of United States Patent No. 6,030,718 to Fuglevand et al., ("Fuglevand").

Applicant's invention as set forth in representative claim 1, as amended, comprises in part:

A method of fabricating a membrane electrode assembly for use in a fuel cell, including the steps of:

(A)providing a mold that includes a first and second mold plate adapted to impart a desired shape to induce compression to decrease the thickness of components in the mold and to apply pressure substantially evenly across an entire active area of a membrane electrode assembly being fabricated in the mold;

(B) providing a lead frame, including at least a first lead frame component that is adapted to be received into said mold;

(C) assembling a protonically conductive membrane with catalyst coatings on each of its major surfaces onto said first lead frame component;

(D) placing said lead frame containing said membrane into the mold;

(E) compressing said second mold plate onto said first mold plate;

(F) introducing a moldable material in communication with said mold plates; and

(G) allowing the moldable material to cure in said mold to solidify and form a frame around said membrane to produce a membrane electrode assembly for use in a fuel cell.

Montminy discloses one technique for insert molding various consumer electronics and a fuel cell, but the technique does not teach inducing compression in the components of the fuel cell. The Examiner notes that the sealed perimeter may have a compressing effect, but Montminy does not discuss the importance of an even and intentional application of pressure during the molding process. As stated in Applicant's Specification: "The mold cavity is designed in accordance with the invention such that when it closes, it compresses the cell to decrease the thickness dictated by the selected internal pressure. Pressure is placed substantially evenly across the entire active area of the cell during the molding process and after the molding is complete this pressure is maintained by the plastic frame, which is securely formed around the fuel cell components and remains stationary, applying substantially constant pressure. (Page 14, lines 1-6).

In prior techniques, the post molding compression was maintained by tight screws, bolts and other fasteners. However, in accordance with the present invention,

compression in the fuel cell is introduced by the mold plates themselves. The mold cavity is designed in accordance with the invention such that when it closes, it compresses the cell to decrease the thickness dictated by the selected internal pressure.” (*See*: Specification, Page 13, line 19 through Page 14, line 6). Then, later the frame holds this pressure, but the frame alone would not induce the pressure contemplated by the method of the present invention. Thus, even if Montminy’s sealed edges have a compressive effect, this would not perform the function nor have the advantages of Applicant’s claimed molding techniques

Montminy fails to disclose, teach or suggest Applicant’s claimed features of imparting compression to decrease the thickness of components in the mold and to apply pressure substantially evenly across an entire active area of a membrane electrode assembly being fabricated in the mold. Accordingly, Montminy alone does not render obvious Applicant’s invention of independent Claims 1, 6 and 14 due to the absence from Montminy of a suggestion of those features. Furthermore, Montminy alone does not render obvious the invention claimed in the remaining independent claims 7 and 11 because Montminy alone does not suggest the compression feature.

The teaching in the Fuglevand reference of a lead frame does not render obvious Applicant’s invention because Applicant’s invention performs the further function stated as follows: “The frame also holds the components of the cell in compression, without the need for screws and nuts, which are thus completely eliminated.” (Specification, Page 6, lines 15-17). Accordingly, Fuglevand does not alone render Applicant’s claimed invention obvious. Furthermore, the combination of Fuglevand and Montminy still does not

disclose teach or suggest Applicant's inventive features involving compression, and eliminating the need for screws and nuts as stated above.

The independent claims have been amended in order to clarify this distinction. It is thus respectfully submitted that Applicant's claimed invention, as claimed in the independent claims, and similarly, as claimed in the claims dependent therefrom, is patentable over the cited references.

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Respectfully submitted,

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